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EXAMINER	
ISAAC, STANETTA D	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/669,205
Filing Date: September 24, 2003
Appellant(s): KIM ET AL.

Timothy N. Trop
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 9/4/07 appealing from the Office action mailed 11/17/07.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,864,571 ARIK ET AL 3-2005

Kotz, John C and Purcell, Keith F.. "Chemistry & Chemical Reactivity", Saunders College Publishing, Second Edition, 1991, page index I-6

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 14 is sustained under 35 U.S.C. 102(e) as being anticipated by Arik et al., US Patent 6,864,571.

Arik discloses the semiconductor method as claimed. See figures 1-8, and corresponding text, where Arik teaches, pertaining to claim 14, a method comprising: forming a trench **122** in an integrated circuit substrate **100** (figure 5; col. 8, lines 35-43); lining the trench with a catalyst material **124** to remove gases from a circulating fluid (figure 5; col. 7, lines 46-67; col. 8, lines 1-5, circulating fluid and catalyst involvement with later formed channels; col. 8, lines 45-51, lining of the groove); forming channels **126** that align with said trench to allow fluid circulation completely across said substrate from one side of said substrate to the other and through said trench (figure 5; col. 8, lines 52-59; col. 9, lines 20-33, ***Note***: the Examiner takes the position that grooves are formed on both the top and bottom of the combined substrates **102** and **104**. In addition, the Examiner takes the position that the channels are formed laterally across the

substrates); and protecting said catalyst when forming said channels (figure 5; col. 8, lines 45-51, the resist provides protection of the catalyst deposition).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 16 and 17 are sustained under 35 U.S.C. 103(a) as being unpatentable over Arik et al., US Patent 6,864,571.

Arik discloses the semiconductor method substantially as claimed. See preceding rejection of claim 14 under 35 U.S.C. 102(e).

However, Arik fails to show, pertaining to claims 16 and 17, depositing platinum or lead as catalyst within the trench.

Arik teaches that a catalyst coating in deposited within the groove.

It would have been obvious to one of ordinary skill in the art to incorporate, depositing platinum or lead as a catalyst within the trench, in the method of Arik, pertaining to claims 16 and 17, according to the teachings of Arik, with the motivation that, both platinum and lead chemically can be used as catalyst materials conventionally known in the art.

(10) Response to Argument

In response to Appellant's arguments as to whether Arik suggests that the catalyst material removes gases from the circulating fluid, the Examiner takes the position that Arik does suggest

that the catalyst material removes gases from the circulating fluid. Specifically, Arik shows, in figure 5, a cross-section of one of the microchannels where the fluid vapor **130** (dark shaded area) is condensed **132** (dark droplets) by the catalyst coating (the implied removal of gases from a vapor to liquid form) (col. 7, lines 46-67; col. 8, lines 1-5). In addition, the Examiner takes the position that although Arik teaches that the catalyst causes carbon nanotubes to grow, the general definition of a *catalyst* has a known chemical property to increase the rate of a reaction while being consumed in the reaction (see *Kotz, John C and Purcell, Keith F.. "Chemistry & Chemical Reactivity", Saunders College Publishing, Second Edition, 1991, page index I-6*). Therefore, the catalyst formed within the micro-channel, as taught by Arik, is chemically *reacting* with the liquid to remove gases from a liquid while circulating through the micro-channel.

In response to Appellant's arguments whether Arik teaches channels that align with the trench to allow fluid circulation completely across the substrate from one side of the substrate to the other and through the trench, the Examiner takes the position that Arik does suggest that the grooves can be formed on both the top and bottom of the combined substrates **102** and **104** (figure 5; col. 8, lines 52-59; col. 9, lines 20-33). In addition, Arik implies that the grooves would have been formed across either wafer from side to side, since the fluid flows through the channels formed within the grooves.

In response to the Appellant's arguments whether Arik teaches protecting the catalyst when forming the channels, the Examiner takes the position that Arik states that the photo resist provides protection of the catalyst film while the channels are being formed, where portions of the catalyst covered by the patterned photo-resist will be protected (figure 5; col. 8, lines 45-51).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Stanetta Isaac

Patent Examiner

Art Unit 2812

12/26/07

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CHEMISTRY & CHEMICAL REACTIVITY

Second Edition

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